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The Importance and Impact of Social Support on Outcomes in Patients With Heart Failure

An Overview of the Literature

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As advances in medical treatment of heart failure (HF) become limited, other factors are being studied to improve outcomes. There is much evidence that supportive social relations have a major impact on health outcomes and that social support is essential for adjustment to illness. This article describes current research on the influence of social support on outcomes in patients with HF. A computerized literature search in Medline, CINAHL, and PsychLit was performed on each of the different outcomes in relation to social support, covering the period 1993 to 2003. Seventeen studies were found that investigated the relationship between social support and different outcome measures in HF. Four studies found clear relationships between social support and rehospitalizations and mortality; the relationship between quality of life and depression was less clear. Up to now, limited research has been done on the impact of social support on outcomes in patients with HF. The available studies suggest that social support has an impact on HF outcomes but further research is necessary before firm conclusions about the nature of these relationships can be reached.

KEY WORDS: heart failure, outcomes, review, social support

Heart failure (HF) is defined as "a patho-physiologic state in which an abnormality of cardiac function is responsible for the failure of the heart to pump blood at a rate commensurate with the requirements of the metabolizing tissues."[1] Heart failure is a serious, chronic, and incurable illness, which has a major impact on the lives of patients. Severe symptoms such as dyspnea and fatigue, limited vital capacity, and the consequences of treatment affect not only physical but also mental and social aspects of life. Despite important advances in the medical management of HF, the prognosis of patients

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with HF remains poor. Mortality and hospital admission rates are high.[2,3]

The treatment of HF is complex and often primarily aimed not at recovery but on outcomes such as survival, reduction in readmission rates, and improvement in quality of life (QoL). These aims are met by promoting self-care,[4] so that patients can successfully follow a complex regimen of multiple medications, dietary sodium restriction, increase or maintenance of activity levels, symptom monitoring, and, for some patients, fluid restriction. Because of the complexity of the regimen, and problems with patient adherence to recommendations, substantial effort has been undertaken to improve care by using multidisciplinary HF disease management programs. These programs are often nurse-directed and aimed at advising and counseling patients on how to deal with the prescribed regimen in the hospital and after discharge.[5] A major component of these programs is the support of healthcare professionals as patients cope with and adjust to necessary lifestyle changes. Equally important to helping patients to achieve optimal self-care is promoting and enhancing the support patients receive from partners and relatives.

There is much evidence that supportive social relations have a major impact on health outcomes[6] and that social support is essential for adjustment to illness.[7] The processes and mechanisms linking social relationships to health may be physiological or behavioral.[8]

In most HF disease management programs, it is recognized that the support resources of the patient are important and that lack of resources can render patients vulnerable to repeated rehospitalizations. Nonetheless, in most HF disease management programs, the intervention remains focused on the patient, without explicit delineation of how the partner or family should be involved. As a result, inclusion of partners or other family members is haphazard at best. Although research has demonstrated that social support is a major determinant of adjustment to coronary artery disease (CAD),[9–11] up to now, little research has been done on this issue in patients with HF. Therefore, the purpose of this article is to review the literature on what is scientifically known about the impact of social support on outcomes in patients with HF.

Definitions and Concepts

Although the concept of social support is broadly used, different definitions exist. There are various theoretical views on social support, and as a result many different approaches are used to examine this concept. A commonly used framework is that developed by House et al,[12] in which social support is divided into 3 broad categories: social integration, social networks, and relational content, including positive and negative aspects of social interaction.

Social integration refers to social ties such as marital status, having close family and friends, and the degree of participation in groups and religious affiliations. *Social networks*, structural properties of social relationships, are typically measured by characteristics such as size (number of people), reciprocity (equal exchange between people), and density (degree to which members of the person's network interact with each other). *Relational content* refers to the functional aspects or quality of social relationships. In this category, the term *social support* refers to the "positive, potentially health-promoting or stress-buffering aspects of relationships." Relational content includes 3 types of support: emotional (caring, physical affection), instrumental (tangible assistance or material goods), and informational (provision of information and advice).

According to Cantor's model of hierarchical compensation,[13] older adults select their support from a hierarchy of supportive relationships. Family members are always selected first and within the family, the spouse and the children are chosen more often than distant relatives. Within nonfamily, friends and neighbors are chosen before individuals from formal organizations. In practice, social support is provided by partners or spouses most of the time. To review the literature on the impact of social support on outcomes in HF patients, the broad meaning of the concept of social support is considered.

Mechanisms

There are several models to explain how social support influences physical health outcomes. According to Cohen,[8] there are 2 general mechanisms that link social support to disease: physiologic and behavioral mechanisms.

The physiologic view is based on the hypothesis that social support influences the pathogenesis of disease through a direct effect on the affective state and the activity of the neuroendocrine system and the autonomic nervous system. Activation of the neuroendocrine system by negative emotions such as depression and stressful events can produce cardiac events or sudden death, especially in the vulnerable HF patient. Social support and social integration are presumed to provide a generalized positive affect that suppresses the neuroendocrine response.[8] Adequate social support may protect patients from the pathogenic influence of stress. Patients with adequate supportive relationships perceive stressful events as less threatening, and thus negative affect is avoided and the neuroendocrine system will not be activated.

The behavioral model proposes that social support has its impact through an influence on health behaviors. Social relationships may facilitate or promote health behaviors such as not smoking, adequate nutrition, regulated alcohol intake, and exercise. Patients with heart failure who have adequate social support may be more successful in adhering to the prescribed medication regimen or to the dietary and fluid restrictions. Conversely, socially isolated HF patients may have difficulty altering their behavioral patterns, which makes them more vulnerable to repeated readmissions and death.

Methods

In HF patients, a number of outcomes have been studied, but the following have received the maximum attention recently: readmission, mortality, QoL, and depression. The impact of social support on these outcomes is reviewed in this article.

A computerized literature search in Medline, CINAHL, and PsychLit was undertaken on each of the different outcomes in relation to social support. The keyword combinations "heart failure" and "social support, partner, spouse, married, or couples" were combined with "readmission or rehospitalization or hospital-admission," "mortality or survival or prognosis," "quality of life," and "depression." This search covers the period of 1993 to 2003, in which most of the research in the field of HF emerged. Earlier research was taken into account when it was judged by the authors to be of particular interest. Further, articles were identified through the examination of reference lists from included articles. The search was primarily aimed at HF populations but since this literature was sparse, a broader perspective including myocardial infarction (MI) and cardiovascular disease in general was sometimes necessary.

In total, we found 17 studies that investigated the relationship between social support and different outcomes in HF: 7 studies on social support and readmission, 4 studies on social support and mortality, 3 studies on social support and QoL, and 3 studies on social support and depression. Because of the limited number of studies, we included all studies in this review.

Results

Readmission

Several studies have been done on factors that influence hospital readmissions in HF patients[3]: 7 included a measure of social support and 3 found a clear relationship between lack of social support and readmission rates.[14–16] Another 3 studies found descriptive evidence of a relationship.[17–19] One of the studies found that social support did not predict HF hospitalization.[20]

Vinson et al[18] prospectively evaluated 161 patients with the primary diagnosis of HF admitted for an exacerbation of their illness; 47% were readmitted within 90 days of discharge from the index hospitalization. More than half (53%) of these readmissions were judged to be possibly preventable. A failing support system appeared to be the most important factor of influence in this respect.

Chin and Goldman[14] prospectively followed 257 HF patients during a 2-year period to identify predictors of readmission and death. Within 60 days after the initial admission, 32% of the patients either died or were readmitted. Single marital status, as an indicator of poor social support, was a significant predictor of hospital readmission, even after controlling for other medical risk factors.

Happ et al[17] retrospectively studied the files of 16 HF patients who had participated in a clinical trial on the effect of transitional care: comprehensive discharge and home care follow-up. Happ and colleagues' purpose was to identify and describe factors contributing to rehospitalization and prevention of rehospitalization. Eight rehospitalized patients and 8 patients who were not rehospitalized during the 6-month follow-up were purposely selected from the intervention group. By reviewing the medical records, 3 major risk factors for rehospitalization emerged: medication supply, dietary nonadherence, and poor health behaviors. In addition, supportive family or friends and individual motivation were identified as factors that may have prevented rehospitalization.

Krumholz et al[15] followed 292 patients with HF after hospitalization for HF. Social support was measured by 2 single-item questions. Patients were asked whether they could count on anyone to provide them with (1) emotional support and (2) instrumental support. The absence of emotional support was an important predictor of cardiovascular events in the year after the initial hospital admission for HF. However, in a multiple regression that included gender as one of the covariates, the association between lack of emotional support and cardiovascular events was restricted to women.

Schwarz et al[16] investigated patient factors and caregiver factors and their potential to influence hospital readmissions in HF patients. Patients and their caregivers (128 dyads) were followed for 3 months after hospital discharge; 56 (44%) HF patients were readmitted within this 3-month period. The patients' severity of cardiac illness and functional health status predicted hospital readmission. Demonstrating the importance of social support, informal support of the caregiver reduced

the risk of hospital readmission whereas high levels of stress and depression among caregivers increased the risk of hospital readmission.

Wright et al[19] investigated factors influencing the length of hospital stay, and demonstrated that the presence of social problems and living alone were related to a longer-than-average length of hospital stay.

In contrast to the studies described above, Bennett et al[20] found that social support did not predict HF hospitalization. The social support of 62 HF patients was assessed in relation to rehospitalization during a 6-month follow-up period. In this period, 23 patients (37%) were hospitalized. The investigators suggested that the missing relationship between social support and rehospitalization may be due to the fact that 73% of the patients were married and that overall (considering the mean score on the social support scale), patients believed they had support available most of the time (Table 1).

Mortality

Several studies of patients with cardiac diseases suggest that poor social support is significantly associated with an increased risk of mortality,[9,10,21] but the prognostic importance of social support in patients with HF has received relatively little attention. We found 4 studies investigating the relationship between (the quality of) social support and mortality on patients with HF. In these 4 investigations, a lack of social support or poor quality of social support predicted future mortality.

Chin and Goldman[14] reported that single marital status was an independent predictor of death in 257 HF patients during a 2-year follow-up period.

Coyne et al[22] went one step further and investigated the influence of marital quality on patient survival. Marital quality was obtained by interview and observational measures in 189 patients with HF and their spouses. High marital quality significantly contributed to patient survival during a 4-year follow-up period. Social support was especially crucial to the survival of women.

Krumholz et al[15] demonstrated that the absence of someone to provide emotional support was a strong, independent predictor of the occurrence of fatal and nonfatal cardiovascular events in the year after admission in 292 HF patients.

More recently, the study by Murberg et al[23] evaluated the effects of social relationships on mortality risk and demonstrated an association between social isolation and mortality in 119 HF patients followed for a 2-year period. *Social isolation* was defined as the perception of patients' being unable to maintain social contact with family and friends. A marginally significant association was found between the intimate network support from a spouse, and mortality. The investigators cautiously state that this may indicate that for HF patients, lack of social support from a spouse may be more critical than lack of social support from others (Table 2).

Quality of Life

With regard to the relationship between social support and QoL in patients with HF, 3 studies with conflicting results were found. In a descriptive pilot study among women with HF, Bennett et al[24] examined the relationships between symptom impact, perceived health status, perceived social support, and overall QoL. Perceived social support was significantly, though not strongly, correlated with physical symptom impact as measured by the Minnesota Living with Heart Failure Questionnaire. Greater symptom impact was correlated with poorer health status.

In another study of men and women with HF, this same investigative group[25] found that social support, assessed at baseline during hospitalization for HF, did not predict 12-month health-related quality of life (HRQoL). Changes in social support significantly predicted changes in HRQoL, meaning that an increase of social support improved HRQoL.

Westlake and colleagues[26] also conducted a study to determine the influence of different variables on HRQoL in a population of 61 patients undergoing heart transplantation evaluation. No relationship was found between social network or social support and HRQoL in this sample. The investigators suggested that the lack of evidence may be partially explained by the lack of variability in social support within the sample (Table 3).

Depression

The impact of depression in patients with HF is relatively high. In hospitalized patients, depression occurs in 14% to 36.5% of the patients.[27–29] In outpatient settings, the prevalence of depression is even higher, up to 42%.[30]

Given the impact of depression in patients with HF,[31] it is important to determine factors related to it. In doing so, we may uncover targets for intervention. Research by Frasure-Smith et al[32] in patients with MI suggests that social support may be of importance in predicting and possibly preventing cardiac mortality related to depression. They found that the relationship between depression and cardiac mortality decreases with increasing social support. It is likely that the relationship found among patients with MI extends to those with HF.

Holahan et al[33] focused on the protective role of social support and adaptive coping strategies in HF

TABLE 1 Social Support and Readmission*

Authors, Year, Study Design	Population Studied, Measurement	Results
Vinson et al,[18] 1990 Prospective, descriptive design	Hospitalized HF patients (N = 161, >70 y) Follow-up 90 d, Chart review and patient interview	47% was readmitted in 90 d; 53% was preventable; 21% caused by inadequate social support
Chin and Goldman,[14] 1997 Prospective, correlational design	Hospitalized HF patients (N = 257, 62% < 70 y) Follow-up 60 d, Chart review and patient interview; Social support; marital status	Single marital status is a risk factor for readmission (or death)
Happ et al,[17] 1997 Retrospective, descriptive design	Hospitalized HF patients (N = 12, 70–82 y) Follow-up 6 mo, Patient questionnaires, patient interview, chart review	Factors contributing to rehospitalization: medication supply, dietary nonadherence and poor health behaviors. Factors contributing to prevention of rehospitalization: social support and individual motivation
Krumholz et al,[15] 1998 Longitudinal, cohort study design	Hospitalized HF patients (N = 292, >65 y) Follow-up 1 y, Chart review and patient interview; Social support: 2 single-item questions on emotional and instrumental support	For women, emotional support was an independent predictor of cardiovascular events (fatal/nonfatal)
Schwarz and Elman,[16] 2003 Prospective, descriptive, predictive design	HF patients and their caregivers, 7–10 d after discharge (N = 128, mean age of patients = 77 y, mean age of caregivers = 65 y) Follow-up 3 mo, Chart review, patient questionnaires, and patient interview; Social support: Modified Inventory of Socially Supportive Behaviours Scale	Patient factors: interaction between severity of cardiac illness and functional status predicted readmission Caregiver factors: interaction between caregiver depression and stress, and informal social support predicted readmission
Bennett et al,[20] 1997 Prospective, cross-sectional cohort study design	Hospitalized HF patients (N = 62, mostly men) NYHA I-IV Follow-up 6 mo, Chart review and patient questionnaires; Social support: MOS Social Support Survey	No differences in social support between hospitalized and nonhospitalized patients
Wright et al,[19] 2001 Prospective, descriptive, correlational design	Hospitalized HF patients (N = 179, mean age = 73 y) NYHA III–IV Chart review on sociodemographic, clinical characteristics, treatment-related factors, and in-hospital progress	Social problems requiring in-hospital assessment and living alone were associated with longer hospital stay

*HF indicates heart failure; NYHA, New York Heart Association; and MOS, Medical Outcomes Study.

patients. Looking at the determinants of depressive symptoms, they found that both social support and adaptive coping were significantly related to depressive symptoms at follow-up. Social support was also significantly related to adaptive coping. That is, social support was directly related to subsequent depressive symptoms and indirectly mediated by adaptive coping strategies.

Murberg et al[34] assessed a sample of 119 clinically stable HF patients on the role of social support and social disability as predictors of depression. Poor intimate network support (spouse support) was directly and negatively associated with depression. Social disability, as a result of living with HF, was significantly associated with depression.

Koenig[29] found that among hospitalized HF patients, major depression was identified in 36.5% of the patients. High social support predicted faster remission of a major depression (Table 4).

Discussion

Psychological factors are increasingly being recognized as important in studying the effects of treatment in patients with HF. Research on the influence of psychosocial factors on outcomes in patients with cardiovascular diseases shows an independent and presumably strong relationship between social support and health outcomes. The studies reviewed for this article suggest that a similar relationship applies in HF patients.

Social support appears to be a strong predictor of hospital readmissions and mortality in HF patients. Emotional support in particular—probably support

TABLE 2 Social Support and Mortality*

Author, Year, Study Design	Population Studied, Measurement	Results
Krumholz et al,[15] 1998 Longitudinal, cohort study design	Hospitalized HF patients (N = 292, >65 y) Follow-up 1 y, Chart review and patient interview; Social support: 2 single-item questions on emotional and instrumental support	For women, emotional support was a strong, independent predictor of cardiovascular events (fatal/nonfatal)
Chin and Goldman,[14] 1997 Prospective, correlational design	Hospitalized HF patients (N = 257, 62% < 70 y) Follow-up 60 d, Chart review and patient interview; Social support; marital status	Single marital status is a risk factor for (readmission or) death in patients with HF
Coyne et al,[22] 2001 Prospective, predictive design	HF patients and spouses at home (N = 189, ±53 y, 79% male) Follow-up 4 y, Patient observation, patient interview, and chart review, marital satisfaction, marital routines	Marital quality predicted 4-y survival in patients with HF
Murberg and Bru,[23] 2001 Prospective, correlational design	HF patients from an outpatient hospital practice (N = 119, ±66 y, 71% male) Follow-up 24 mo, Patient questionnaires and chart review; Social support: perceived social support and perceived social isolation	Social isolation was a significant predictor of mortality

*HF indicates heart failure.

provided by partners or spouses—seems to play an important role. Some studies show that support is also related to the prevalence of depression and with remission of a major depression in HF patients. Surprisingly, there is less evidence to support a relationship between social support and QoL.

These conclusions must be constrained with several caveats. First, research on the impact of social support in patients with HF is sparse. There are simply not enough well-conducted studies with sufficient sample sizes to allow us to come to concrete conclusions. This is confirmed by McMahon et al,[35] who found in their overview of research on the effects of psychosocial factors (depression, anxiety, coping style, and social support) in HF, only 2 studies on social support met the inclusion criteria.

Second, the available evidence is conflicting, with some investigators finding no relationship between social support and outcomes, and others demonstrating strong, independent relationships. This discrepancy may be related to the multiple and divergent ways in which the concept of social support has been operationalized. Some studies simply conceptualize social support as living alone or not,

TABLE 3 Social Support and Quality of Life*

Author, Year, Study Design	Population Studied, Measurement	Results
Bennett et al,[24] 1998 Descriptive, correlational design	Hospitalized women with HF (N = 30, mean age = 60 y) Patient questionnaires; Social support: MOS Social Support Survey	Perceived social support was significantly, though not strongly, correlated with physical symptom impact measured by the MLHFQ
Bennett et al,[25] 2001 Prospective design	Hospitalized HF patients (N = 227, mean age = 64 y) Follow-up 12 mo, Patient questionnaires and chart review; Social support: Social Support Survey	Changes in social support was the significant predictor of changes in HRQoL; increase of social support increased HRQoL
Westlake et al,[26] 2002 Descriptive, correlational design	Hospitalized HF patients awaiting heart transplantation (N = 61, mean age = 57 y) Chart review, patient questionnaires, and 6-min walk test; Social support: MOS Social Support Survey	No significant relationship between social status, social network, social support, and HRQoL

*HF indicates heart failure; MOS, Medical Outcomes Study; MLHFQ, the Minnesota Living With Heart Failure Questionnaire; and HRQoL, health-related quality of life.

TABLE 4 Social Support and Depression*

Author, Year, Study Design	Population Studied, Measurement	Results
Frasure-Smith et al,[32] 2000 Prospective, correlational design	Hospitalized MI patients (N = 887, mean age = 59 y) Follow-up 1 y, patient questionnaires and interview; Social support: Perceived Social Support Scale, number of close friends and relatives, marital status/living alone	Social support was not directly related to survival, but high levels of social support buffer the impact of depression on mortality and high levels of social support predict improvements in depressive symptoms
Holahan et al,[33] 1995 Prospective, correlational design	Late-middle-aged elderly with cardiac illness (N = 615, 55–65 y) Follow-up 1 y, patient questionnaires; social support: Life Stressors and Social Resources Inventory (LISRES)	Individuals with acute and chronic cardiac illness reported more depressive symptoms compared to healthy controls at 1-y follow-up Social support showed a direct relationship to subsequent depressive symptoms as well as an indirect relationship mediated by adaptive coping
Murberg et al,[34] 1998 Descriptive, correlational design	HF patients from an outpatient hospital practice (N = 119, ±66 y, 71% male) Follow-up 24 mo, Physical examination (clinical variables) and patient questionnaires; Social support: social network support, social disability	Poor intimate network (spouses), social (disability, and neuroticism were significantly positively related with depression
Koenig,[29] 1998 Prospective, correlational design	Hospitalized patients with HF, other cardiac diseases, and other medical diseases (N = 342, >60 y) Follow-up 47 wk, Chart review and patient interview including psychiatric evaluation	Depression was identified in 36.5% of HF patients Social support predicted faster remission

*MI indicates myocardial infarction; HF, heart failure

a state that may or may not indicate lack of available social support. In other studies, social support is measured as having a partner or spouse, yet it is well known that many individuals with a partner or spouse perceive that they receive no social support from that person. Others have measured social support as the perception of the individual on whether they have adequate social, emotional, or instrumental support.

Given the potential importance of social support to outcomes in HF patients, future research in this area should concentrate on clarifying the relationship between social support and outcomes by first carefully considering the definition of social support and including a measure that truly taps this concept.

In cardiovascular disease, most psychosocial interventions are aimed at the patient; spouses or partners are rarely involved.[36] In an extended review on social support interventions, Hogan et al[37] concluded that although studies on social support interventions produce encouraging results, the same conceptual and methodological problems described above occurred in these studies and limited the ability to make recommendations for clinical practice on the basis of these findings. Recently some efforts have been made to develop and investigate intervention programs to improve or enhance social support in patients with HF.[38,39] These pioneering studies are aiming to improve the likelihood of lifestyle changes of patients with HF by enhancing social support.

Because so little research on social support in patients with HF has been done, many questions remain unanswered. What are specific characteristics of patients with HF in relation to their needs for support? How can this support best be provided? Which support interventions are suitable for patients with HF and their caregivers?

Spouses seem to play an essential role in providing support and in doing so in preventing readmissions. Therefore, this support resource needs more study. Since providing care for an HF patient has been shown to be stressful and burdensome,[40] it also may be necessary to investigate the needs of caregivers.

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